



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/759,357	01/16/2004	Jian Wang	003797.00627	9899

28319 7590 04/05/2007

BANNER & WITCOFF, LTD.

ATTORNEYS FOR CLIENT NOS. 003797 & 013797

1100 13th STREET, N.W.

SUITE 1200

WASHINGTON, DC 20005-4051

EXAMINER

TSAI, TSUNG YIN

ART UNIT

PAPER NUMBER

2609

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.		Applicant(s)	
	10/759,357		WANG ET AL.	
	Examiner		Art Unit	
	Tsung-Yin Tsai		2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1/16/2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14, 16, 17, 19, 20 and 23-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14, 16, 17, 19, 20 and 23-33 is/are rejected.
- 7) ☒ Claim(s) 15, 18, 21 and 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/16/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objection

1. Claim 33 is objected to because of the following informalities:

(1) Regarding claim 33, part D where cited "a captured image" change to "the capture image."

Claim Rejections - 35 USC 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claim 33 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(1) Claim 33, part G recites the limitation "the image location coordinates". There is insufficient antecedent basis for this limitation in the claim. The examiner is unsure if the image location coordinates is same the actual position coordinate.

(2) Claim 33, part G step (ii) recites the limitation "the warped image". There is insufficient antecedent basis for this limitation in the claim. Examiner believes that you are referring to step (i) where the claim instructed in warping the capture image. If that is the case rephrase set (i) to the following "(i) warping the captured image to be a warped image." In this case it will be understood that the capture image has change and become a "warped image".

Art Unit: 2609

(3) Claim 33, part H recites the limitation "image location coordinates". There is insufficient antecedent basis for this limitation in the claim. The examiner is unsure if the image location coordinates is same the actual position coordinate.

(4) Claim 33, part H step (i) recites the limitation "image location coordinates". There is insufficient antecedent basis for this limitation in the claim. The examiner is unsure if the image location coordinates is same the actual position coordinate.

(5) Claim 33, part H step (i) recites the limitation "decode image". There is insufficient antecedent basis for this limitation in the claim.

(6) Claim 33, part I recite the limitation "the calibration parameter". There is insufficient antecedent basis for this limitation in the claim.

(7) Claim 33, part I recites the limitation "the image location coordinates". There is insufficient antecedent basis for this limitation in the claim. The examiner is unsure if the image location coordinates is same the actual position coordinate.

4. Claim 33 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Claim Rejections – 35 USC 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 23-27 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Art Unit: 2609

In claim 23-27, a computer program is being recited; however, computer program would reasonably be interpreted by one of ordinary skill in the art as software, per se. This subject matter is not limited to that which falls within a statutory category of invention because it is limited to a process, machine, manufacture, or a composition of matter. Software is a function descriptive material and a function descriptive material is non-statutory subject matter.

Claim Rejections – 35 USC 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 23, 28 and 31 are rejected under 35 U.S.C. 102(b) as being unpatentable over Ericson et al (US 2001/0038383 A1).

Ericson et al disclose a method for determining a path of a pen tip with in a document comprising:

(1) Regarding claim 1:

(A) decoding extracted bits associated with a captured image to determine location coordinates of the captured image (figure 3, page 1 paragraph 0015, page 2 paragraphs 0025-0030. Digital pen captures the image and decode the coordinates of its location.);

(B) in response to (A), if the location coordinates of the captured image cannot be determined by decoding, matching the captured image with image information of the document (page 1 paragraph 0015, page 2 paragraph 0017. If it is unable to decode due to the coordinate system, there is an alternative way to find its location by raster/image matching from the capture image.); and

(C) mapping the path of the pen tip from the location coordinates of the captured image to the location coordinates of the tip of the pen (page 2 paragraph 0021. Digital pen may record coordinates both from the writing surface and the capture image and distinguish the different coordinates should be process.).

(2) Regarding claim 23:

Ericson et al further disclose where state that the method of this disclosure is carry out by a computer-readable medium (page 1 paragraph 0003, page 2 paragraph 0024, page 3 paragraph 0037-0038. Show that not only the digitize pen can perform that function, a computer or server also perform in assisting or helping in processing the information.).

(3) Regarding claim 28:

An apparatus that determines a path of a pen tip within a document, comprising (title, abstract):

a decoding module that decodes extracted bits associated with a captured image (page 3 paragraph 0036. Where the pen is the decoding module cannot

only can just transmit the coordinate, but itself has the capability to decode for character recognition software that converts the coordinates into characters.);

a matching module that matches the captured image with image information of the document if location coordinates of the captured image cannot be determined by the decoding module (page 3 paragraph. The matching module is the user's computer that has the same capabilities, but having much more powerful processor and software.);

and a mapping module that maps the path of the pen tip from the location coordinates of the captured image and that provides path information (page 3 paragraph 0038. Where the server is seen as the mapping module that will perform further functions of mapping when the coordinates are transmitted to be process by the server.).

(4) Regarding claim 31:

Ericson et al further teaches a maze pattern analyzer that extracts the extracted bits associated with a maze pattern of the captured image and that provides the extracted bits to the decoding module (page 3 paragraph 0036-0038. The digital pen, computer and server all counts as maze pattern analyzer that extract the captured image, decode and extract the position or the information of the area.).

Claim Rejections – 35 USC 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ericson et al (US 2001/0038383 A1) in view of Marchosky (US 2003/0050803 A1).

(1) Regarding claim 2:

Ericson et al teaches about decoding image information regarding coordinates.

Ericson et al does not teach about the documents being watermark.

However, Marchosky teaches where the watermark documents and the watermark itself contain information (page 4 paragraph 0029.).

It would have been obvious to one skill in the art at the time of the invention to employ Marchosky teachings to Ericson et al regarding the document to be watermarked, such that the document will not only be authenticated and unique, but also the record database comprising positioning an encrypted visual watermark on the document image to provide information about the document image (page 4 paragraph 0029).

Art Unit: 2609

11. Claims 3, 6 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ericson et al (US 2001/0038383 A1) in view of Carlstrom (US Patent Number 5,875,264).

(1) Regarding claim 3:

Ericson et al teaches about analyzing captured image for location extraction.

Ericson et al does not teach where the captured image corresponds to an m-array.

However, Carlstrom teaches where the maze pattern can be of m-array (column 6 lines 24-51).

It would have been obvious to one skill in the art at the time of the invention to employ Carlstrom teachings to Ericson regarding where the capture image can also be of m-array, such that the bit pattern in the capture image interest becomes a unique value for detection, as well as be more seen easily of the pixel array (column 6 lines 40-45).

(2) Regarding claim 24:

Ericson et al further disclose where state that the method of this disclosure is carry out by a computer-readable medium (page 1 paragraph 0003, page 2 paragraph 0024, page 3 paragraph 0037-0038. Show that not only the digitize pen can perform that function, a computer or server also perform in assisting or helping in processing the information.).

(3) Regarding claim 6:

Art Unit: 2609

Ericson et al teaches regarding captured image with an area of an image of the document, wherein the area is estimated by analyzing the image of the document (page 2 paragraph 0017. Where the image is compare to the a raster/image of the document.)

Ericson et al does not teach where the corresponding location is determined by m-array decoding.

However, Carlstrom teaches where the maze pattern can be of m-array (column 6 lines 24-51) for location determination.

It would have been obvious to one skill in the art at the time of the invention to employ Carlstrom teachings to Ericson regarding where the capture image can also be of m-array, such that the bit pattern in the capture image interest becomes a unique value for location detection, as well as be more easily seen of the pixel array (column 6 lines 40-45).

(4) Regarding claim 25:

Ericson et al further disclose where state that the method of this disclosure is carry out by a computer-readable medium (page 1 paragraph 0003, page 2 paragraph 0024, page 3 paragraph 0037-0038. Show that not only the digitize pen can perform that function, a computer or server also perform in assisting or helping in processing the information.).

12. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ericson et al (US 2001/0038383 A1) in view of Carlstrom (US Patent Number 5,875,264) as

Art Unit: 2609

applied in claim 3 above, and in further view of Nichani (US Patent Number 6,259,827 B1).

(1) Regarding claim 4:

Ericson et al teaches regarding the capture image (page 1 paragraph 0015, page 2 paragraph 0017 and 0025-0030).

Ericson et al does not disclose segmenting the maze pattern from an obstruction component of the captured image, wherein the obstruction component occludes the maze pattern.

However, Nichani teaches about image segmentation module that segments the maze pattern from an obstruction component of the captured image, wherein the obstruction component comprises document content that occludes the maze pattern (figure 3A-3F, column 1 lines 40-55, column 2 lines 15-25 and 50-65. With the function of image segmentation this method is able to extract the difference between the maze/pattern as well as the object that is occluding the maze/pattern.).

It would have been obvious to one skill in the art at the time of the invention to employ Nichani teachings to Ericson et al regarding image segmentation to detect the maze/pattern and the object that is occluding the maze/pattern, such that this will improve machine vision and for pattern/maze identification (column 3 lines 5-15).

Art Unit: 2609

13. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ericson et al (US 2001/0038383 A1) in view of Carlstron (US Patent Number 5,875,264) and Nichani (US Patent Number 6,259,827 B1) as applied in claim 4 above, and in further view of Gorr et al (US Patent Number 5,961,571).

(1) Regarding claim 5:

Ericson et al teaches about the illumination by the light of the pen for the capture of the image (page 2 paragraph 0025-0026).

Ericson et al does not teach about normalizing the captured image due to non-uniform illumination.

However, Gorr et al teaches normalizing the captured image to compensate for non-uniform illumination (column 4 lines 6-26).

It would have been obvious to one skill in the art at the time of the invention to employ Gorr et al teachings to Ericson et al regarding normalizing the captured image to compensate for non-uniform illumination, such that the image features will be more reliable for analysis (column 4 lines 14-15) and decoding for coordinates information.

14. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ericson et al (US 2001/0038383 A1) in view of Carlstrom (US Patent Number 5,875,264) as applied to claim 6 above, and in further view of Gorr et al (US Patent Number 5,961,571).

(1) Regarding claim 7:

Ericson et al and Carlstrom teaches regarding matching image with an area of the document (Ericson et al, page 2 paragraph 0017) and determining location by m-array decoding (Carlstrom, column 6 lines 25-51.)

Ericson et al and Carlstrom does not teach warping the capture image.

However, Gorr et al teaches normalizing the captured image (column 4 lines 6-26. Normalizing an image is seen as "warping" the capture image. Furthermore, the wording of "warping" is confusing. According the Merriam Webster dictionary the word "warping" implies "to turn or twist out of or as if out of shape". Such action to the captures image does not further assist in decoding the capture image for location determination.).

It would have been obvious to one skill in the art at the time of the invention to employ Gorr et al teachings to Ericson et al regarding normalizing the captured image, such that the image features will be more reliable for analysis (column 4 lines 14-15) and decoding for coordinates information.

(2) Regarding claim 8:

Although Ericson et al does not teach "(B) further comprises: (iv) in response to (iii), repeating (i)", such limitation are merely a matter of design choice and would have been obvious method of Ericson et al. Ericson et al in combine teachings of Gorr et al and Carlstrom in regarding "iii" and "i" respectively. The limitation in claim 8 do not define a patentably distinct invention over that in Ericson et al since both invention as a whole are directed at coordination determination through different means. The means of repeating

Art Unit: 2609

coordination determination by the means of capture image to image document matching if fail than by m-array coordination determination would have been a matter of obvious design choice to one of the ordinary skill in the arts.

15. Claims 9 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ericson et al (US 2001/0038383 A1) in view of Carlstrom (US Patent Number 5,875,264) and Gorr et al (US Patent Number 5,961,571) as applied to claim 7 above, and in further view of Marchosky (US 2003/0050803 A1).

(1) Regarding claim 9:

Ericson et al teaches regarding an analyzer (page 3 paragraph 0036. Where the pen acts as an analyzer) that will disclose the information regarding the area (page 3 paragraph 0040 lines 4-11. Where in scanning that area information as well as predetermined function are to be carry out), where the area is occluded by the content (page 3 paragraph 0041. Where the adhesive labels will occlude the page content) and visual indication (page 3 paragraph 0041. This can also be seen as a watermark.)

Ericson et al does not disclose that the document is watermarked.

Marchosky disclose how a visual watermarked document can disclose information regarding the content of the document (page 4 paragraph 0029).

It would have been obvious to one skill in the art at the time of the invention to employ Marchosky teachings to Ericson et al regarding the document to be watermarked, such that the document will not only be

Art Unit: 2609

authenticated and unique, but also the record database comprising positioning an encrypted visual watermark on the document image to provide information about the document image (page 4 paragraph 0029).

(2) Regarding claim 26:

Ericson et al further disclose where state that the method of this disclosure is carry out by a computer-readable medium (page 1 paragraph 0003, page 2 paragraph 0024, page 3 paragraph 0037-0038. Show that not only the digitize pen can perform that function, a computer or server also perform in assisting or helping in processing the information.).

16. Claims 10-12, 19 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ericson et al (US 2001/0038383 A1) in view of O'Donnell, Jr (US Patent Number 6,573,887 B1).

(1) Regarding claim 10:

Ericson et al disclose where the digital pen also has a pen tip for regular pigment writing (page 2 paragraph 0028.)

Ericson et al does not teach calibrating the pen tip comprising using the calibration parameter and a perspective transform.

However, O'Donnell, Jr teaches about a calibration module that determines a calibration parameter from movement information of a pen in relation to the pen tip, wherein the mapping module utilizes a transform and the calibration parameter in conjunction with the location coordinates of the captured

Art Unit: 2609

image to map the path of the pen tip (page 3 lines 55-67 to page 4 lines 1-51. A detail description of the pen is disclosed. Page 4 lines 23-35 disclose that the CCD or the CMOS can be oriented, also seen as calibration, in order to have a better view of the image that is it taking. Page 4 lines 45-51 show the position determination in relationship to the tip of the pen when it is writing.).

It would have been obvious to one skill in the art at the time of the invention to employ O'Donnell, Jr teachings to Ericson et al regarding calibration of the pen in relationship to the pen time for mapping module utilization, such that in adjusting of the CDD will allow a better image capturing for better position determination as well as for adaptability of different user's angle for writing.

(2) Regarding claim 27:

Ericson et al further disclose where state that the method of this disclosure is carry out by a computer-readable medium (page 1 paragraph 0003, page 2 paragraph 0024, page 3 paragraph 0037-0038. Show that not only the digitize pen can perform that function, a computer or server also perform in assisting or helping in processing the information.).

(3) Regarding claim 11:

Ericson et al disclose where the digital pen also has a pen tip for regular pigment writing on the document (page 2 paragraph 0028.)

Ericson et al does not teach calibrating the pen tip comprising using the calibration parameter and a perspective transform of the CCD for mapping the location.

However, O'Donnell, Jr teaches about a calibration module that determines a calibration parameter from movement information of a pen in relation to the pen tip, wherein the mapping module utilizes a transform and the calibration parameter in conjunction with the location coordinates of the captured image to map the path of the pen tip (page 3 lines 55-67 to page 4 lines 1-51. A detail description of the pen is disclosed. Page 4 lines 23-35 disclose that the CCD or the CMOS can be oriented, also seen as calibration, in order to have a better view of the image that is it taking. Page 4 lines 45-51 show the position determination in relationship to the tip of the pen when it is writing.).

It would have been obvious to one skill in the art at the time of the invention to employ O'Donnell, Jr teachings to Ericson et al regarding calibration of the pen in relationship to the pen time for mapping module utilization, such that in adjusting of the CDD will allow a better image capturing for better position determination as well as for adaptability of different user's angle for writing.

(4) Regarding claim 12:

Ericson et al disclose where the digital pen also has a pen tip for regular pigment writing on the document (page 2 paragraph 0028.)

Ericson et al does not teach calibration parameter is indicative of a virtual pen tip position, where the "virtual pen tip position" is define by the specification as whatever image that is capture by the CCD.

However, O'Donnell, Jr teaches about a calibration module that determines a calibration parameter from movement information of a pen in

relation to the pen tip, wherein the mapping module utilizes a transform and the calibration parameter in conjunction with the location coordinates of the captured image to map the path of the pen tip (page 3 lines 55-67 to page 4 lines 1-51. A detail description of the pen is disclosed. Page 4 lines 23-35 disclose that the CCD or the CMOS can be oriented, also seen as calibration, in order to have a better view of the image that is it taking. Page 4 lines 45-51 show the position determination in relationship to the tip of the pen when it is writing.).

It would have been obvious to one skill in the art at the time of the invention to employ O'Donnell, Jr teachings to Ericson et al regarding calibration of the pen in relationship to the pen time for mapping module utilization, such that in adjusting of the CDD will allow a better image capturing for better position determination as well as for adaptability of different user's angle for writing.

(5) Regarding claim 19:

Ericson et al disclose where the digital pen also has a pen tip for regular pigment writing (page 2 paragraph 0028).

Ericson et al does not calculating pen tip location coordinates from virtual pen tip coordinates utilizing a perspective transform.

However, O'Donnell, Jr teaches about a calibration module that determines a calibration parameter from movement information of a pen in relation to the pen tip, wherein the mapping module utilizes a transform and the calibration parameter in conjunction with the location coordinates of the captured image to map the path of the pen tip (page 3 lines 55-67 to page 4 lines 1-51. A

Art Unit: 2609

detail description of the pen is disclosed. Page 4 lines 23-35 disclose that the CCD or the CMOS can be oriented, also seen as calibration, in order to have a better view of the image that is it taking. Page 4 lines 45-51 show the position determination in relationship to the tip of the pen when it is writing.).

It would have been obvious to one skill in the art at the time of the invention to employ O'Donnell, Jr teachings to Ericson et al regarding calibration of the pen in relationship to the pen time for mapping module utilization, such that in adjusting of the CDD will allow a better image capturing for better position determination as well as for adaptability of different user's angle for writing.

17. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ericson et al (US 2001/0038383 A1) in view of Katsura et al (US 2001/0053238 A1).

(1) Regarding claim 13:

Ericson et al teaches obtaining the extracted bits that are associated with a captured array (page 1 paragraph 0015).

Ericson et al does not teach processing the extracted bits to determine whether the extracted bits contain at least one error bit and to determine the location coordinates if no error bits are detected and if the at least one error bit is detected, further processing the extracted bits to determine the location coordinates from a portion of the extracted bits, wherein the location coordinates are consistent with a local constraint.

However, Katsure et al teaches processing the extracted bits to determine whether the extracted bits (page 5, right column lines 1-2) contain at least one error bit (page 5, right column lines 7-8) and to determine the location coordinates if no error bits are detected and if the at least one error bit is detected, further processing the extracted bits to determine the location coordinates from a portion of the extracted bits (page 5, right column lines 1-19), wherein the location coordinates are consistent with a local constraint (Errors bits are detected in the capture image, however the method still disclose cutting the "real" embedding information from the image and still extracting information or executing decision, which is seen as coordination extraction.).

It would have been obvious to one skill in the art at the time of the invention to employ Katsure et al teaching to Ericson et al regarding coordinate information extraction even with partially faulty capture image, such this method of coordinate extraction is a flexible and adaptable method in case all method fail.

(2) Regarding claim 14:

Ericson et al teaches selecting first subset/image (page 1 paragraph 0015), decoding the first subset/image (page 1 paragraph 0015, page 2 paragraph 0017) determining the location coordinates of the captured array (page 1 paragraph 0015, page 2 paragraph 0017 and 0021).

Ericson et al does not teach about error bit detection of the array.

However, Katsure et al teaches processing the extracted bits to determine whether the extracted bits (page 5, right column lines 1-2) contain at least one error bit (page 5, right column lines 7-8).

It would have been obvious to one skill in the art at the time of the invention to employ Katsure et al teaching to Ericson et al regarding coordinate information extraction even with partially faulty capture image, such this method of coordinate extraction is a flexible and adaptable method in case all method fail.

18. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ericson et al (US 2001/0038383 A1) in view of Carlstron (US Patent Number 5,875,264) as applied in claim 3 above, in further view of Groeneveld et al (US Patent Number 6,230,304 B1).

(1) Regarding claim 16:

Ericson et al teaches extracting location coordinates from the capture image or compare to raster/image for coordinate determination (page 1 paragraph 0015, page 2 paragraph 0017. Matching capture image to the raster/image is seen as pattern parameter characterizing.)

Ericson et al does not teach that grid lines characterize the maze pattern.

However, Groeneveld et al teaches pattern parameter characterizing grid lines of the maze pattern (figure 12A-C, figure 14, figure 15, figure 16A-C,

Art Unit: 2609

column 1 lines 64-67 to column 2 lines 1-3. Grid patterns are use for the maze pattern, where the maze pattern is the substrates of the integrated circuits.)

It would have been obvious to one skill in the art at the time of the invention to employ Groeneveld et al teaches Ericson et al regarding grid lines of the maze pattern, such that grid lines are used by the automated place and detection unit to assist in determination and then tracking of the location (column 1 lines 64-67 to column 2 lines 1-3) regarding to the paper.

19. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ericson et al (US 2001/0038383 A1) in view of Carlstrom (US Patent Number 5,875,264) and Gorr et al (US Patent Number 5,961,571) as applied to claim 7 above, in further of Rhoads (US Patent Number 5,822,436).

(1) Regarding claim 17:

Ericson et al teaches about capturing image for pattern analysis (page 1 paragraph 0015, page 2 paragraph 0017).

Ericson et al does not teach about scaling and rotating the capture image as well as aligning the captured maze pattern.

However, Rhoads teaches about scaling and rotating the capture image as well as aligning the captured maze pattern (column 76 lines 21-31).

It would have been obvious to one skill in the art at the time of the invention to employ Rhoads teachings to Ericson et al regarding scaling and rotating the capture image as well as aligning the captured maze pattern, such

Art Unit: 2609

that the image would than be straightforward and optimize for analysis as well as the purpose of operation.

20. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ericson et al (US 2001/0038383 A1) in view of Carlstrom (US Patent Number 5,875,264) and Gorr et al (US Patent Number 5,961,571) as applied to claim 7 above, in further view of Marchosky (US 2003/0050803 A1).

(1) Regarding claim 20:

Ericson et al teaches where the capture image of the document (page 1 paragraph 0015, page 2 paragraph 0017 and 0025-0030.)

Ericson et al does not disclose that the document is watermarked.

Marchosky disclose how a visual watermarked document can disclose information regarding the content of the document (page 4 paragraph 0029).

It would have been obvious to one skill in the art at the time of the invention to employ Marchosky teachings to Ericson et al regarding the document to be watermarked, such that the document will not only be authenticated and unique, but also the record database comprising positioning an encrypted visual watermark on the document image to provide information about the document image (page 4 paragraph 0029).

21. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ericson et al (US 2001/0038383 A1) in view of O'Donnell, Jr (US Patent Number 6,573,887 B1).

(1) Regarding claim 29:

Ericson et al teaches regarding the pen (figure 3, page 2 paragraph 0025), the pen tip (page 2 paragraph 0028) and the mapping module functions (Page 3 paragraph 0036-0038).

Ericson et al does not teach about the calibration parameter of the movement of the pen in relation to the pen tip.

However, O'Donnell, Jr teaches about a calibration module that determines a calibration parameter from movement information of a pen in relation to the pen tip, wherein the mapping module utilizes a transform and the calibration parameter in conjunction with the location coordinates of the captured image to map the path of the pen tip (page 3 lines 55-67 to page 4 lines 1-51. A detail description of the pen is disclosed. Page 4 lines 23-35 disclose that the CCD or the CMOS can be oriented, also seen as calibration, in order to have a better view of the image that is it taking. Page 4 lines 45-51 show the position determination in relationship to the tip of the pen when it is writing.).

It would have been obvious to one skill in the art at the time of the invention to employ O'Donnell, Jr teachings to Ericson et al regarding calibration of the pen in relationship to the pen time for mapping module utilization, such that in adjusting of the CDD will allow a better image capturing for better position determination as well as for adaptability of different user's angle for writing.

Art Unit: 2609

22. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ericson et al (US 2001/0038383 A1) in view of Marchosky (US 2003/0050803 A1).

(1) Regarding claim 30:

Ericson et al teaches regarding an analyzer (page 3 paragraph 0036. Where the pen acts as an analyzer) that will disclose the information regarding the area (page 3 paragraph 0040 lines 4-11. Where in scanning that area information as well as predetermined function are to be carry out), where the area is occluded by the content (page 3 paragraph 0041. Where the adhesive labels will occlude the page content) and visual indication (page 3 paragraph 0041. This can also be seen as a watermark.)

Ericson et al does not disclose that the document is watermarked.

Marchosky disclose how a visual watermarked document can disclose information regarding the content of the document (page 4 paragraph 0029).

It would have been obvious to one skill in the art at the time of the invention to employ Marchosky teachings to Ericson et al regarding the document to be watermarked, such that the document will not only be authenticated and unique, but also the record database comprising positioning an encrypted visual watermark on the document image to provide information about the document image (page 4 paragraph 0029).

23. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ericson et al (US 2001/0038383 A1) in view of Nichani (US Patent Number 6,259,827 B1).

(1) Regarding claim 32:

Ericson et al disclose all the subject matter as describe in claim 31.

Ericson et al does not disclose an image segmentation module that segments the maze pattern from an obstruction component of the captured image, wherein the obstruction component comprises document content that occludes the maze pattern.

Nichani teaches about image segmentation module that segments the maze pattern from an obstruction component of the captured image, wherein the obstruction component comprises document content that occludes the maze pattern (figure 3A-3F, column 1 lines 40-55, column 2 lines 15-25 and 50-65. With the function of image segmentation this method is able to extract the difference between the maze/pattern as well as the object that is occluding the maze/pattern.).

It would have been obvious to one skill in the art at the time of the invention to employ Nichani teachings to Ericson et al regarding image segmentation to detect the maze/pattern and the object that is occluding the maze/pattern, such that this will improve machine vision and for pattern/maze identification (column 3 lines 5-15).

Allowable Subject Matter

24. Claims 15, 18 and 21-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

25. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kashiwagi et al (US Patent Number 6,396,598 B1) disclose method and apparatus for electronic memo processing for integrally managing document including paper document and electronic memo added to the document.

Ericson et al (US Patent Number 7,167,164 B2) disclose digital pen for recording/transmitting handwritten information, has memory unit connected to memory unit of external data storage device in such a way that memory units operate as single coherent memory unit.

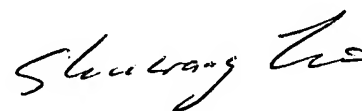
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tsung-Yin Tsai whose telephone number is (571) 270-1671. The examiner can normally be reached on Monday - Friday 8 am - 5 pm ESP.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on (571) 272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2609

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tsung-Yin Tsai
March 26, 2007



SHUWANG LIU
SUPERVISORY PATENT EXAMINER